

## Description

*This application is a 371 of PCT/EP04/07428 filed July 7, 2004 which claims priority to German Application No. 103 31545.4 filed July 11, 2003.*

Digital-analog converter and method for digital-analog conversion

5

The present invention relates to a digital-analog converter and to a method for digital-analog conversion, and particularly to a D/A converter with an array arrangement for current cells using DEM (Dynamic Element Matching) and to a corresponding conversion method.

D/A converters are today used in a wide range of applications. In such applications, a quantized analog signal must always be produced from a digital signal using a quantization device. The usual problem in this context is that the quantization device, which often comprises a multiplicity of quantization elements, cannot ensure an arbitrarily high level of accuracy for the quantized analog output signal.

To overcome the problem of inaccurate or imprecise quantization elements in D/A converters, it is known practice to use DEM (Dynamic Element Matching), as described in "Design of Multibit Delta-Sigma A/D converters" by Yves Geerts, Michael Steyaert, Willy Sansen, Kluwer Academic Publisher, ISBN 1-4020-7078-0, on pages 74 to 97. A drawback of using DEM is that D/A converters with high resolution, i.e. with a large number of quantization elements in the quantization device, require very complex hardware for this.

High-resolution D/A converters are therefore known to be preferably provided as an array arrangement of current sources, as described in European patent specification EP 0 176 981. Figure 5 shows an example of how the current sources for the individual cells in the array arrangement 22 are connected in a conventional D/A converter, formed from a current